KOTRON® RF
SENSING PROBES

Kotron RF Capacitance sensing probes are available in many different configurations to handle a wide variety of application conditions.

The sensing probes in this brochure can be combined with all Kotron level switches and transmitters.Some amplifiers require specific probes only. Refer to the amplifier bulletins to ensure proper selections.

FEATURES

Rigid probes:

- Available as bare probe/insulated probe
- Max. process temperature:
  540°C (1,000°F) - bare probe
  200°C (400°F) - insulated probe
- Max. process pressure: 345 bar (5,000 PSIG)
- Lengths up to 6 m (234")
- Bare probes can be cut to length in the field
- Wetted materials include: 316 SST (1.4401), 316/316L (1.4401/1.4404), Hastelloy C (2.4819), Teflon(TFE), Halar (ECFTE) and Kynar (PVDF)
- Ceramic seals for High Temperature/High Pressure designs.

Flexible probes:

- Available as bare probe/insulated probe
- Max. temperature:
  345°C (650°F) - bare probe
  140°C (285°F) - insulated probe
- Lengths up to 45m (150')
- Insulated probe length can be adjusted in the field
- Wetted materials include: 316 SST (1.4401) and Halar (ECFTE)
- Teflon seals for standard probes, ceramic seals for High temperature/ High Pressure designs.

MAGNESEAL®

- see page 11

APPLICATIONS

- Clean or dirty liquids.
- Viscous liquids.
- Light slurries.
- High temperature/pressure liquids.
- Foods and beverages.
- Powders and granulars.
- Hydrocarbons & solvents.
- Corrosives, acids & caustics.

A probe to satisfy each application

AGENCY APPROVALS

ATEX	Intrinsically safe (with Kotron 805) II 1G EEx ia II C T6
CENELEC	Intrinsically safe (with Kotron 082) EEx ia m II C T6
CENELEC	Explosion proof EEx d II C T6 (with Kotron 082) EEx d ia II C T6 (with Kotron 810/811)
FM/CSA	Intrinsically safe (with Kotron 082/805) Explosion proof (with Kotron 810 and 811)

GUIDELINES FOR SELECTING A CORRECT PROBE CONFIGURATION

Probe selection is the most critical part of applying an R.F. Capacitance device for a given application. The goal is to select the probe that will give the optimum capacitance change per unit level change (pF/cm). The first step in selecting an R.F. probe is determining the correct configuration for your application. The following guidelines will assist you in this selection.

1. Use bare probes for non-conductive liquids.
2. Use insulated probes for conductive liquids. If you are not sure about the conductivity value, use an insulated probe. Teflon has the widest temperature range and material compatibility. Kynar will maximize the capacitance change. (Use Kynar where possible.)
3. Use a probe with an integral ground reference (Reference Probe) when measuring non-conductive fluids in horizontal tanks, non-conductive liquids where the probe will be mounted more than 30 cm (12") from the vessel wall, or when measuring any liquid in non-metallic vessels. The stillwell probe is the most common. If the application requires “no metal” in the process or if the liquid is too viscous for a stillwell, use the reference rod probe. The reference wire probe should only be used in clean, conductive, non-coating applications.
4. Use a flexible (cable) probe when the measurement range is greater than 3 m (10'). Rigid (rod) probes are available up to 6m (236") in length, but they are sometimes difficult to handle and can be damaged during installation.
5. Use an inactive sheath probe when mounting horizontally through a nozzle.

Recommendation for continuous measurement (with Kotron 082 and 805).

- For non-conductive media (dielectric < 10 or conductivity less than 10 µsiemens/cm)
  0 % = min. 100 mm (4") above end of probe.
- For conductive media (dielectric > 10 or conductivity greater than 10 µsiemens/cm)
  0 % = min. 50 mm (2") above end of probe.

PRINCIPLE OF OPERATION

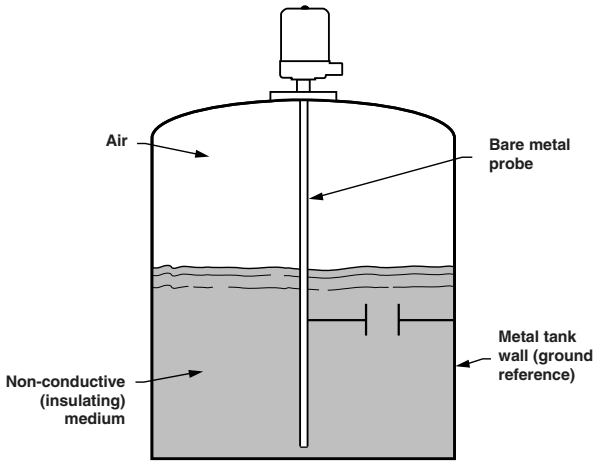
The amount of capacitance developed in any application is affected by three variables:
- size (surface area) of the probe;
- distance from the probe to its ground;
- dielectric of the medium it is measuring.

Considering that the probe’s mounting position is fixed, and the dielectric constant of the process media is stable, then the amount of capacitance developed is directly proportional to the level of the process media on the probe. Increasing the surface area (diameter) of the probe and/or decreasing the distance between the probe and its ground reference will increase the capacitance gain.

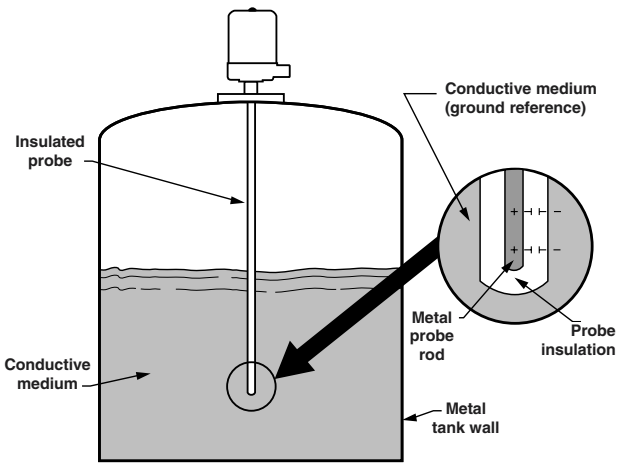
Basic Considerations

There are two types of process media:

- Non-conductive (dielectric < 10 or conductivity less than 10 µsiemens/cm)
  Hydrocarbons, solvents, and bulk solids typically fall into the category of non-conductive media. Initially, when the vessel is empty, the dielectric constant is 1 (air). As the media level rises, the dielectric of the media replaces the air, thus causing the capacitance to increase. This increase is linear with the level increase. A bare probe is usually the best choice for this application.



- Conductive (dielectric > 10 or conductivity greater than 10 µsiemens/cm)
  Conductive media in conjunction with a bare probe will result in an electrical “short”, causing a transmitter to indicate a high level or a switch to change state (this may be desirable depending upon the application). The solution is to use an insulated probe constructed of Teflon®, Kynar®, etc. The conductive media creates an electrical connection between the tank wall and the probe insulation. Like the non-conductive application, the distance between the probe and ground, and the probe diameter, is fixed. However, instead of measuring the dielectric of the media, we are measuring the dielectric of the probe where it is covered by the media.



CAPACITANCE PICO FARAD (pF) GAIN GRAPHS

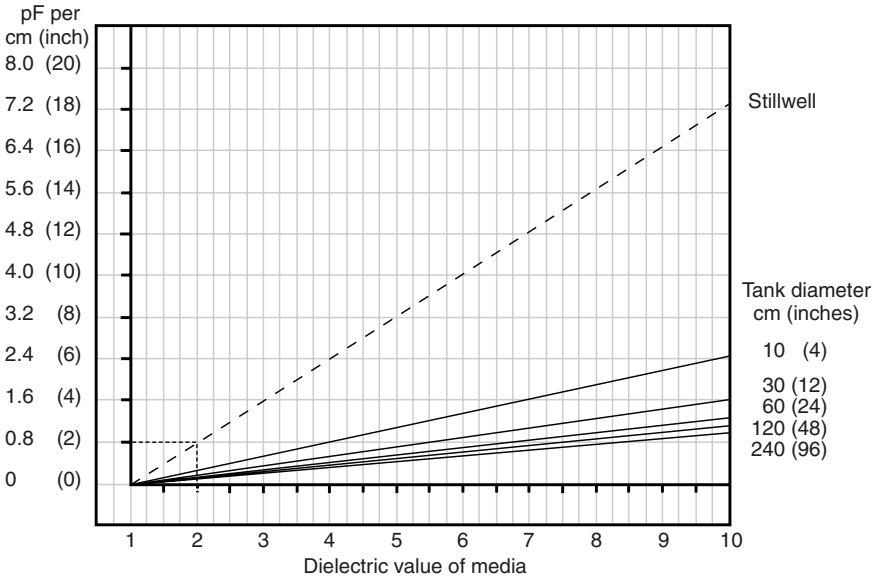
The following pages contain capacitance gain graphs which can be used to determine the proper probe/electronics choice for any given application. To use the graphs, follow the steps below.

1. Determine the dielectric of the process medium being measured. If the dielectric is unknown, use a dielectric of 2 for non-conductive media such as hydrocarbons or dry media, and a dielectric value of 80 for water based, conductive liquids (dielectric values are along the X axis).
2. Choose a probe. Since more than one probe will usually work, consider the other application parameters such as temperature, pressure, material compatability, etc.
3. Find the graph which covers the chosen probe. Choose the curve on the graph which most closely relates to your particular application (Stillwell, 10 cm, 30 cm, 60 cm, 120 cm and 240 cm tank dia.).
4. Using the chosen curve, determine the amount of pF/cm your application will develop (pF/cm values are on Y axis).
5. Multiply the pF/cm value by the total cm of probe needed in your application.
6. Compare total capacitance generated by probe against the needed zero and span of the Kotron electronics to be used.

Range of capacitance adjustment

	Zero set point	Span/Differential
811	min. 0 pF to max. 1000 pF	min. 0.5 pF to max. 700 pF
810	min. 0 pF to max. 500 pF	0.5 pF, fixed
082	min. 0 pF to max. 1000 pF	min. 50 pF to max. 4000 pF
805	min. 0 pF to max. 10000 pF	min. 5 pF to max. 10000 pF

These charts are meant as an application aid; actual values may differ slightly. Always give yourself at 10 % margin of error to ensure satisfactory performance.
These curves represent the probe located in the center of the vessel. If the probe is near one wall of a large tank, do the following: multiply the distance from the tank wall by 2 (to develop a diameter), choose the closest curve in the chart to your application, and then multiply the resultant pF value x 78 %. This will account for the probe not being totally surrounded by the ground reference.



Example:
Parameters: a. Dielectric = 2.0
b. Probe = Part No. 8CB-AAEB-183 (with stillwell)
c. pF/cm = 0.8
d. Electronics = Kotron Two-Wire Transmitter
e. Required application span = 1830 mm
f. Electronics span = 50 pF min. to 4000 pF max. (See chart above.)

0.8 pF/cm x 183 cm = 146 pF
The total capacitance is enough to meet the 50 pF minimum span of the electronics.

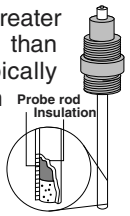
INSULATED RIGID PROBES FOR CONDUCTIVE - NON CONDUCTIVE MEDIA

RIGID PROBES

Rigid probes consist of a process connection, a seal and a probe rod. The rod may take many forms, depending on the application. The following is a description of some of the more common rigid probe styles:

Insulated probes

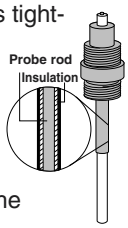
Insulated rod probes are used in conductive process media with a dielectric value greater than 10 or a conductivity value greater than 10 µsiemens/cm. Capacitance is typically measured from the probe rod through the insulation to the process media, which is at the same potential as the tank wall for conductive media. Probes are insulated in Teflon, Halar® or Kynar. When you are uncertain about the dielectric constant of your process media, insulated probes are a wise choice.



Inactive sheath

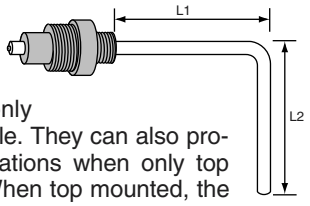
An inactive sheath is a metallic tube that is tightly coupled to the insulation on the probe rod and attached to the process connection. The sheath "deadens" the portion of the probe covered. It is used when a false capacitance could be developed by interference, such as:

- Collection of debris in a nozzle when the probe is horizontally mounted.
- Falling process media entering the tank.



Bent probe

Bent rod probes have a variety of uses. They can provide vertical configurations when only side mounting is available. They can also provide horizontal configurations when only top mounting is available. When top mounted, the horizontal section of the probe can be used to create an extremely stable setpoint by developing a very large capacitance change with a small level change.

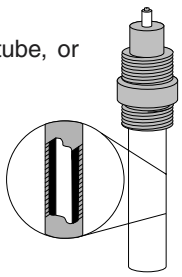


REFERENCED PROBES

This classification covers probes that can supply the "second plate of the capacitor" in non-metallic tanks, or linearize an existing reference (i.e. horizontal cylindrical tanks). There are two types of referenced probes offered:

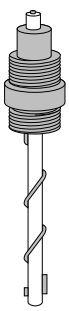
Stillwell

A stillwell is a metallic tube, or pipe, into which a probe is inserted concentrically. It can be used to minimize the effect of turbulence in a vessel and increases the capacitance gain by bringing the ground reference closer to the probe.



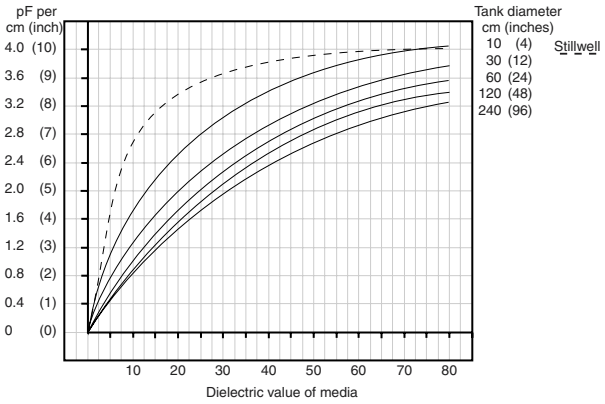
Reference wire

A reference wire is spirally wrapped around an insulator probe to provide a "ground" reference where none exists. It must be used selectively: clean, conductive, and low viscosity processes only.



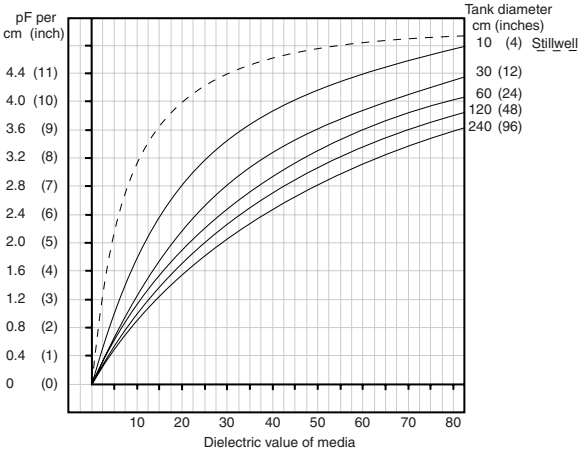
Capacitance gain chart for Teflon coated probes

8xA-1Axx-xxx or 8xA-4Axx-xxx
(digit"x" represents all possible combinations)
Refer to page 3 for instructions how to use this chart



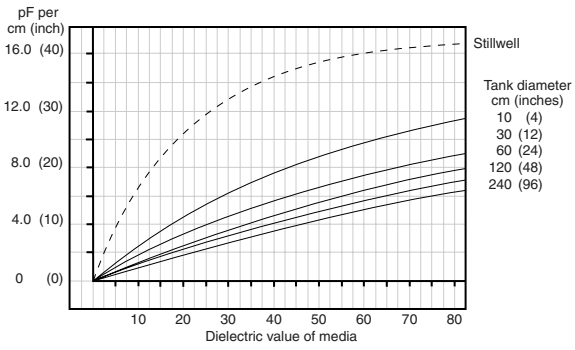
Capacitance gain chart for the Halar coated probes

8xA-2Axx-xxx or 8xA-5Axx-xxx
(digit"x" represents all possible combinations)
Refer to page 3 for instructions how to use this chart



Capacitance gain chart for the Kynar coated probes

8xA-3xxx-xxx or 8xA-6xxx-xxx
(digit"x" represents all possible combinations)
Refer to page 3 for instructions how to use this chart



SELECTION DATA: INSULATED PROBES (for conductive - non conductive media)

A complete measuring system consists of a:

1. KOTRON® amplifier. See bulletin BE 50-1xx
2. KOTRON® Probe
3. KOTRON® Bent probe: specify L1 and L2 lengths in mm (see page 4)
4. OPTION: Heat extension for process temperatures > 95 °C (200 °F): P/N: **089-6593-001** (see page 6)

2. Order code for RIGID PROBES

BASIC MODEL NUMBER

8 C A	Standard RIGID probe for general purpose and intrinsically safe area
8 P A	RIGID probe for Explosion proof area

MATERIAL (316/316L - 1.4401/1.4404 process connection①) AND MAX TEMP/PRESSURE RATING②

1 A	Carbon steel rod with Teflon (PTFE) coating ③
2 A	Carbon steel rod with Halar (ECFTE) coating ④
3 A	Carbon steel rod with Kynar (PVDF) coating ⑤
4 A	316/316L SST (1.4401/1.4404) rod with Teflon (PTFE) coating ③
5 A	316/316L SST (1.4401/1.4404) rod with Halar (ECFTE) coating ④
6 A	316/316L SST (1.4401/1.4404) rod with Kynar (PVDF) coating ⑤

① Consult factory for Halar (ECFTE)/Kynar (PVDF) faced flanges or mounting nut
② Temperature at electronics should not exceed 70 °C (160 °F)
③ Max 200 °C @ 13.8 bar/max 205 bar @ 40 °C (max 400 °F @ 200 psig/max 3000 psig @ 100 °F)
④ Max 95 °C @ 3.5 bar/max 205 bar @ 40 °C (max 200 °F @ 50 psig/max 3000 psig @ 100 °F)
⑤ Max 95 °C @ 13.8 bar/max 205 bar @ 65 °C (max 200 °F @ 200 psig/max 3000 psig @ 150 °F)

THREADED PROCESS CONNECTION

1	3/4" NPT - thread (not for probe with stillwell - configuration style “B”)
2	1" NPT - thread
E	G1 (1" BSP) - thread

ANSI FLANGED PROCESS CONNECTION

4	1"	150 lbs RF flange
5	1 1/2"	150 lbs RF flange
6	2"	150 lbs RF flange
7	3"	150 lbs RF flange
8	4"	150 lbs RF flange
9	1"	300 lbs RF flange
A	1 1/2"	300 lbs RF flange
B	2"	300 lbs RF flange
C	3"	300 lbs RF flange
D	4"	300 lbs RF flange

S	1 - 1 1/2"	3A approved sanitary flange ①
T	2"	3A approved sanitary flange ①
U	3"	3A approved sanitary flange ①
V	4"	3A approved sanitary flange ①

① Only for 8CA-xxxA-xxx probes

DIN FLANGED PROCESS CONNECTION

H	DN 25 PN 16, DIN 2527 Form B flange
J	DN 40 PN 16, DIN 2527 Form B flange
K	DN 50 PN 16, DIN 2527 Form B flange
L	DN 25 PN 25/40, DIN 2527 Form B flange
M	DN 40 PN 25/40, DIN 2527 Form B flange
N	DN 50 PN 25/40, DIN 2527 Form B flange

Y	DN 25 - DIN 11851 sanitary fitting ①
Z	DN 50 - DIN 11851 sanitary fitting ①

① Only for 8CA-xxxA-xxx probes

CONFIGURATION STYLE

A	Standard Probe
B	Standard Probe with 25 mm (1") diameter stillwell in 316 SST (1.4401) ①
C	Standard Probe with 150 mm (6") inactive sheath in 316 SST/316L (1.4401/1.4404)
D	Bent probe 90°, specify L1 and L2 lengths in mm (see page 4)
E	Standard Probe with reference wire in 316 SST/316L (1.4401/1.4404)

① Consult factory for smaller diameter stillwell probe

INSERTION LENGTH (specify length per 1 cm (0.39") increments)

0 1 5	Minimum length of 15 cm (6")
0 1 8	Minimum length of 18 cm (7") for probes with G1 connection
5 9 5	Maximum length of 595 cm (234")

8		A		A					

BARE RIGID PROBES FOR NON CONDUCTIVE MEDIA

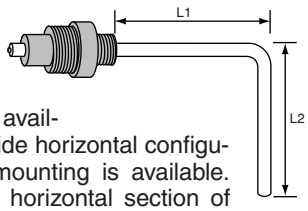
RIGID PROBES

Rigid probes consist of a mounting nut (process connection) a probe rod and seal. The rod may take many forms, depending on the application. The following is a description of some of the more common rigid probe styles:

Bare probes

Bare rod probes are typically used in non-conductive process media with a dielectric value less than 10 or a conductivity value less than 10 µsiemens/cm. Capacitance is measured from the probe through the process media to the vessel wall.

Bent probe



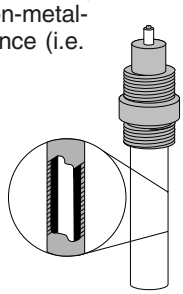
Bent rod probes have a variety of uses. They can provide vertical configurations when only side mounting is available. They can also provide horizontal configurations when only top mounting is available. When top mounted, the horizontal section of the probe can be used to create an extremely stable setpoint by developing a very large capacitance change with a small level change.

REFERENCED PROBES

This classification covers probes that can supply the “second plate of the capacitor” in non-metallic tanks, or linearize an existing reference (i.e. horizontal cylindrical tanks).

Stillwell

A stillwell is a metallic tube, or pipe, into which a probe is inserted concentrically. It can be used to minimize the effect of turbulence in a vessel and increases the capacitance gain by bringing the ground reference closer to the probe.

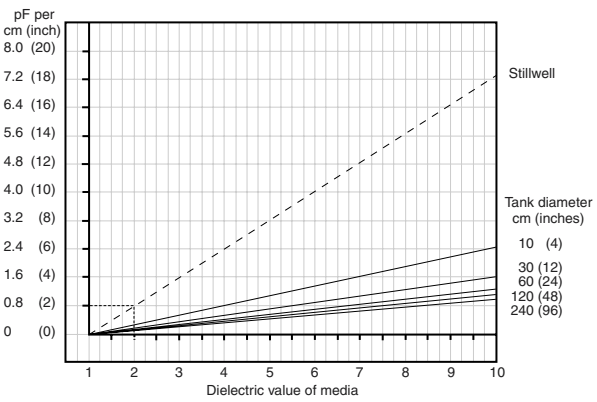


Capacitance gain chart for bare probes

8xB-xxxx-xxx or 8xC-xxxx-xxx

(Digit "x" represents all possible combinations)

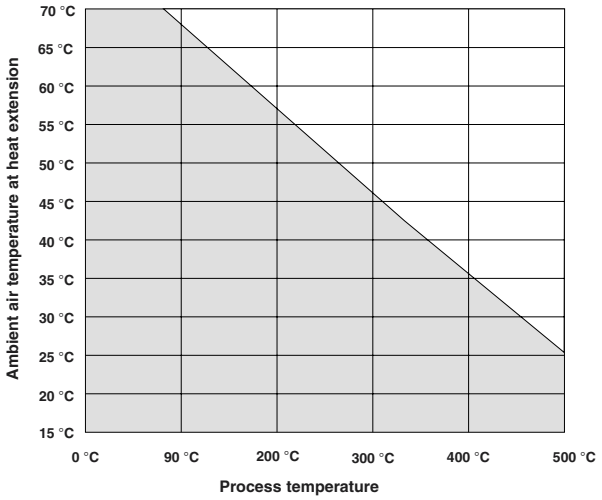
Refer to page 3 for instructions how to use this chart



HEAT EXTENSION

Heat dissipation graph

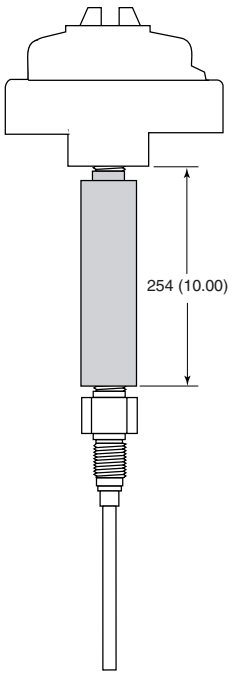
For use with Heat extension (89-6593-001)



The heat dissipation graph depicts the maximum temperatures at which the extension, P/N 89-6593-001 can be used effectively.

1. Determine the maximum process temperature in the application and locate on X axis.
2. Determine the maximum ambient temperature surrounding the heat extension and locate on the Y axis.
3. If the intersecting point on the graph is within the shaded area the heat extension will dissipate enough heat to keep the electronics temperature below +70 °C (+160 °F).

NOTE: The heat extension may be used with all rigid probe configurations and the flexible probe configuration 8C2-AA1A-0xx. The heat extension can not be used with guarded probes.



SELECTION DATA: BARE PROBES (for non conductive media)

A complete measuring system consists of a:

1. KOTRON® amplifier. See bulletin BE 50-1xx
2. KOTRON® Probe
3. KOTRON® Bent probe: specify L1 and L2 lengths in mm (see page 6)
4. OPTION: Heat extension for process temperatures > 95 °C (200 °F): P/N: **089-6593-001** (see page 6)

2. Order code for BARE RIGID PROBES

BASIC MODEL NUMBER

8 C B	Standard BARE probe for general purpose and intrinsically safe area ①
8 P B	Standard BARE probe for explosion proof area ①
8 C C	High Temperature/High Pressure BARE probe for general purpose, intrinsically safe and explosion proof area ②

① Max 200 °C @ 13.8 bar/max 205 bar @ 40 °C (max 400 °F @ 200 psig/max 3000 psig @ 100 °F)
② Max 535 °C @ 35.0 bar/max 345 bar @ 40 °C (max 1000 °F @ 500 psig/max 5000 psig @ 100 °F)

MATERIALS

A A	316 SST (1.4401) rod with Teflon seal (standard probe) or ceramic seal (high temp/high pressure)
B B	Hastelloy C (2.4819) rod with Teflon seal (standard probe) ①

① Not for probe with stillwell - configuration style “B”

THREADED PROCESS CONNECTION – 316/316L (1.4401/1.4404) or Hastelloy C (2.4819)

1	3/4" NPT - thread (not for probe with stillwell - configuration style “B”)
2	1" NPT - thread
E	G1 (1" BSP) - thread

ANSI FLANGED PROCESS CONNECTION – 316/316L (1.4401/1.4404) or Hastelloy C (2.4819)

4	1"	150 lbs RF flange
5	1 1/2"	150 lbs RF flange
6	2"	150 lbs RF flange
7	3"	150 lbs RF flange
8	4"	150 lbs RF flange
9	1"	300 lbs RF flange
A	1 1/2"	300 lbs RF flange
B	2"	300 lbs RF flange
C	3"	300 lbs RF flange
D	4"	300 lbs RF flange

DIN FLANGED PROCESS CONNECTION – 316/316L (1.4401/1.4404) or Hastelloy C (2.4819)

H	DN 25 PN 16, DIN 2527 Form B flange
J	DN 40 PN 16, DIN 2527 Form B flange
K	DN 50 PN 16, DIN 2527 Form B flange
L	DN 25 PN 25/40, DIN 2527 Form B flange
M	DN 40 PN 25/40, DIN 2527 Form B flange
N	DN 50 PN 25/40, DIN 2527 Form B flange

CONFIGURATION STYLE

A	Bare Probe in 316 SST (1.4401)
B	Bare Probe with 25 mm (1") diameter stillwell in 316 SST (1.4401)
D	Bent probe 90° (specify L1 and L2 seperately)

INSERTION LENGTH (specify length per 1 cm (0,39") increments)

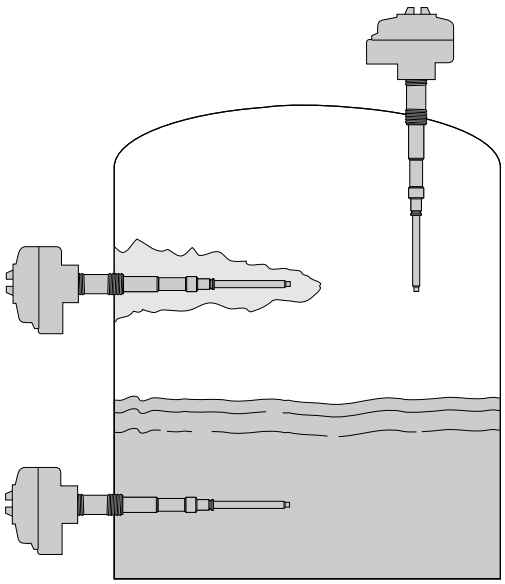
0 1 5	Minimum length of 15 cm (6")
0 1 8	Minimum length of 18 cm (7") for probes with G1 connection
5 9 5	Maximum length of 595 cm (234")

8									

GUARDED PROBE

Guarded probes are only used for switch function in applications with extreme build up. The guarded probes require additional coating rejection circuitry and can only be used with the following Kotron amplifiers: Kotron 810 and Kotron 811.

The guarded probe can be cut to length but requires a minimum of 102 mm (4") below the lower probe insulation.



SELECTION DATA: GUARDED PROBE

A complete measuring system consists of a:

1. KOTRON® amplifier. See bulletin BE 50-1xx
2. KOTRON® Probe

2. Order code for GUARDED RIGID PROBES

BASIC MODEL NUMBER

8 C D	Guarded probe for general purpose, intrinsically safe and explosion proof area – max 200 °C @ 17 bar / 240 bar @ 40 °C (max 400 °F @ 250 psig / 3500 psig @ 100 °F)

MATERIAL (316/316L - 1.4401/1.4404 mounting nut)

A A	316/316L SST (1.4401/1.4404) rod with Ryton guard insulation

THREADED PROCESS CONNECTION

1	3/4" NPT - thread
E	G1 (1" BSP) - thread

CONFIGURATION STYLE

A	Standard Bare Probe in 316 SST (1.4401)

INSERTION LENGTH

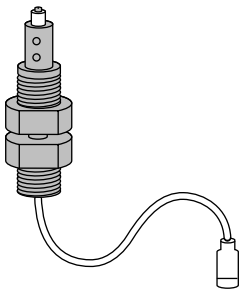
0 4 5	45 cm (18 ") for 3/4" NPT - 48 cm (19") for G1 (1" BSP) thread
0 9 2	92 cm (36") for 3/4" NPT - 95 cm (37") for G1 (1" BSP) thread

8	C	D	A	A		A	0		

FLEXIBLE PROBES FOR CONDUCTIVE AND NON CONDUCTIVE MEDIA

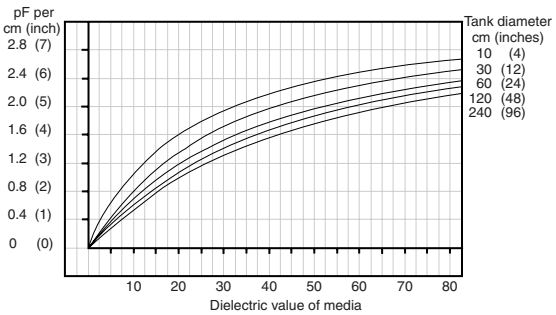
Rigid probes longer than 3 m (10') are difficult to install and to physically move in the field. Flexible probes are the ideal solution for measuring ranges for 3 m (10') up to 45 m (150'). Always check whether the selected amplifier is powerful enough to cover for these longer distances. Check this out by means of the below chart.

Insulated flexible probes can be used on either conductive as non conductive media.



Capacitance gain chart for flexible probe

Refer to page 3 for instructions how to use this chart
5 mm (0.19") probe diameter



SELECTION DATA: FLEXIBLE PROBES (for conductive and non conductive media)

A complete measuring system consists of a:

1. KOTRON® amplifier. See bulletin BE 50-1xx
2. KOTRON® Probe
3. OPTION: Anchor assembly: P/N: **032-8814-001**
   Weight: P/N: **004-4355-001**
   Kynar insulated weight: P/N: **032-8902-001**

2. Order code for INSULATED FLEXIBLE PROBES

BASIC MODEL NUMBER

8 C 1	Insulated flexible probe for general purpose and intrinsically safe area ①
8 P 1	Insulated flexible probe for explosion proof area ①

① Max 140 °C @ 3.8 bar/max 7 bar @ 70 °C (max 285 °F @ 50 psig/max 100 psig @ 160 °F)

MATERIAL (316/316L - 1.4401/1.4404 mounting nut)

5 A	316 SST (1.4401) with Halar (ECTFE) coating

THREADED PROCESS CONNECTION (Consult factory for threaded flanges)

1	3/4" NPT - thread

CONFIGURATION STYLE

A	Insulated Flexible Probe

INSERTION LENGTH (specify length per 1 m (3.28') increments)

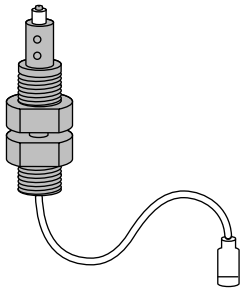
0 0 3	Minimum length of 3 m (10')
0 4 5	Maximum length of 45 m (150')

8			–	5	A	1	A	–	0		

FLEXIBLE PROBES FOR NON CONDUCTIVE MEDIA

Rigid probes longer than 3m (10') are difficult to install and to physically move/ stock in the field. Flexible probes are the ideal solution for measuring ranges for 3m up to 45m. Always check whether the selected amplifier is powerful enough to cover for these longer distances. Check this out by means of the below chart.

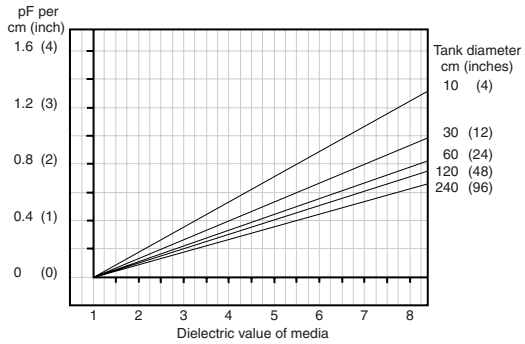
Bare flexible probes can only be used on non conductive media.



Capacitance gain chart for bare flexible probe

Refer to page 3 for instructions how to use this chart

5 mm (0.19") probe diameter



SELECTION DATA: FLEXIBLE PROBES (for non conductive media)

A complete measuring system consists of a:

1. KOTRON® amplifier. See bulletin BE 50-1xx
2. KOTRON® Probe
3. OPTION: Anchor assembly: P/N: **032-8814-001**
   Weight: P/N: **004-4355-001**
4. OPTION: Heat extension for process temperatures > 95 °C (200 °F): P/N: **089-6593-001** (see page 6)

2. Order code for BARE FLEXIBLE PROBES

BASIC MODEL NUMBER

8 C 2	Standard bare flexible probe for general purpose, intrinsically safe and explosion proof area max 345 °C @ 35 bar / 345 bar @ 40 °C (max 640 °F @ 500 psig / 5000 psig @ 100 °F)

MATERIAL (316/316L - 1.4401/1.4404 mounting nut)

A A	316 SST (1.4401)

THREADED PROCESS CONNECTION

1	3/4" NPT - thread

CONFIGURATION STYLE

A	Bare Flexible Probe

INSERTION LENGTH (specify length per 1 m (3.28') increments)

0 0 3	Minimum length of 3 m (10')
0 4 5	Maximum length of 45 m (150')

8	C	2	A	A	1	A	0		

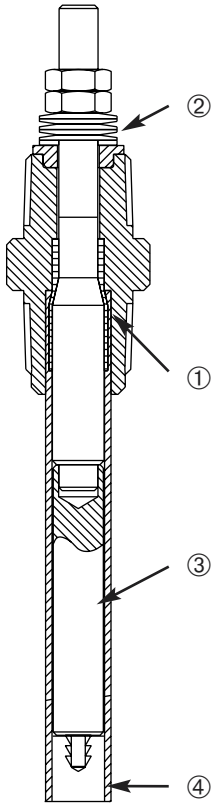
MAGNESEAL® PROBES

Probes are an essential component of the RF Capacitance measurement system. They are critical in development of the proper “capacitor” for reliable level measurement. As importantly, the probe becomes part of the process seal of the vessel; its reliability is crucial. With the development of the Magneseal probe, Magnetrol has taken strides to further ensure this reliability.

The Magneseal probe offers the following advantages:

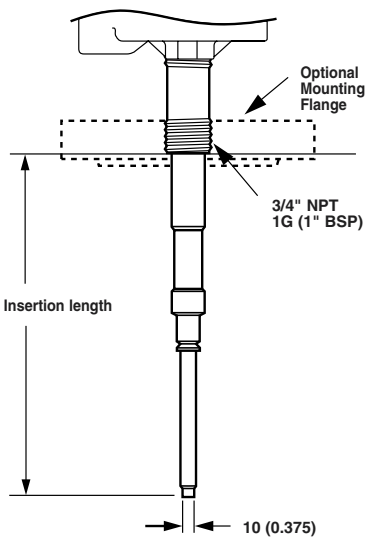
1. A sophisticated compression seal exerts radial pressure between the center rod and the mounting nut yielding bulletproof sealing up to 3000 psig (205 bar).
2. Spring washers maintain the seal particularly during varying temperature and pressure that can degrade other process seals.
3. The Teflon (TFE) probe insulation is heat-treated which forms the material tight to the probe rod yielding better linearity eliminates “stress-relieving” (elongation) of the material at elevated temperatures.
4. Stability of the outer jacket is maintained by the end of probe barb which further secures the insulating jacket.

The Magneseal design takes a giant step toward reliability; a probe design that can be installed and forgotten.

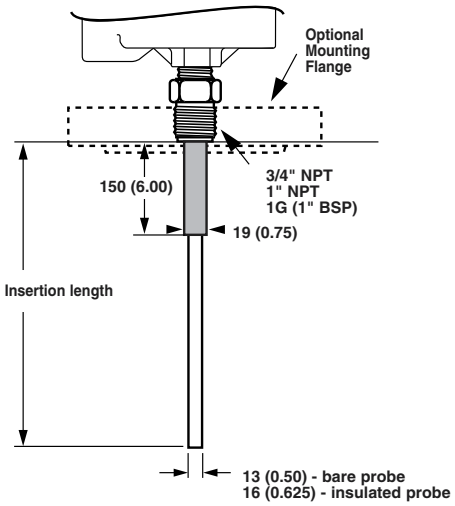


DIMENSIONS in mm (Inches)

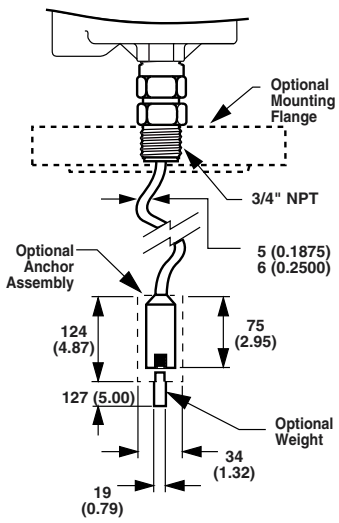
guarded probe



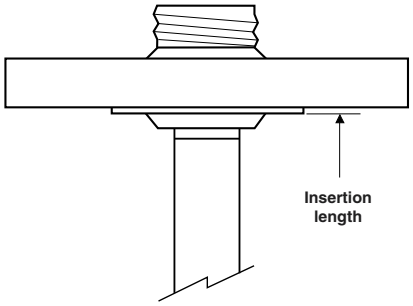
rigid probe



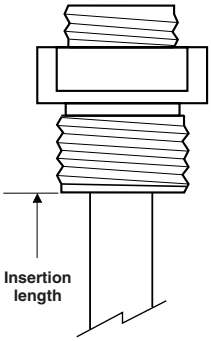
flexible probe



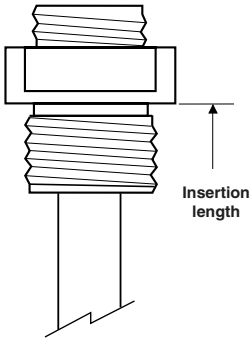
CONNECTIONS



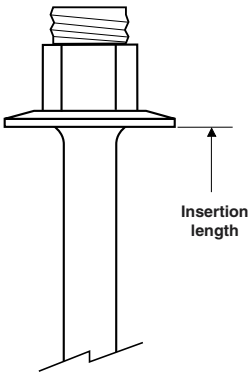
Welded flange ANSI / DIN



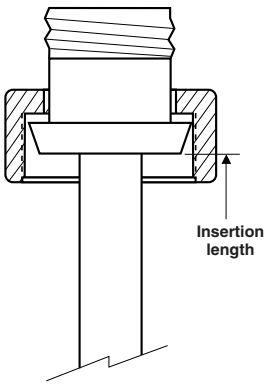
Threaded
NPT



Threaded
1" BSP



Sanitary 3A



Sanitary DIN 11851

QUALITY ASSURANCE - ISO 9001

THE QUALITY ASSURANCE SYSTEM IN PLACE AT MAGNETROL GUARANTEES THE HIGHEST LEVEL OF QUALITY DURING THE DESIGN, THE CONSTRUCTION AND THE SERVICE OF CONTROLS.
OUR QUALITY ASSURANCE SYSTEM IS APPROVED AND CERTIFIED TO **ISO 9001** AND OUR TOTAL COMPANY IS COMMITTED TO PROVIDING FULL CUSTOMER SATISFACTION BOTH IN QUALITY PRODUCTS AND QUALITY SERVICE.

DNV Accredited by the RvA
ISO-9001 REGISTERED FIRM
DNV Certification B.V., THE NETHERLANDS

PRODUCT WARRANTY

ALL MAGNETROL ELECTRONIC AND ULTRASONIC LEVEL CONTROLS ARE WARRANTED FREE OF DEFECTS IN MATERIALS AND WORKMANSHIP FOR ONE FULL YEAR FROM THE DATE OF ORIGINAL FACTORY SHIPMENT. IF RETURNED WITHIN THE WARRANTY PERIOD; AND, UPON FACTORY INSPECTION OF THE CONTROL, THE CAUSE OF THE CLAIM IS DETERMINED TO BE COVERED UNDER THE WARRANTY; THEN, MAGNETROL INTERNATIONAL WILL REPAIR OR REPLACE THE CONTROL AT NO COST TO THE PURCHASER (OR OWNER) OTHER THAN TRANSPORTATION.
MAGNETROL SHALL NOT BE LIABLE FOR MISAPPLICATION, LABOR CLAIMS, DIRECT OR CONSEQUENTIAL DAMAGE OR EXPENSE ARISING FROM THE INSTALLATION OR USE OF THE EQUIPMENT. THERE ARE NO OTHER WARRANTIES EXPRESSED OR IMPLIED, EXCEPT, SPECIAL WRITTEN WARRANTIES COVERING SOME MAGNETROL PRODUCTS.

Magnetrol®

UNDER RESERVE OF MODIFICATIONS

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